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# How could differences in ‘control over destiny’ lead to socio-economic inequalities in health? A synthesis of theories and pathways in the living environment



Margaret Whitehead<sup>a,\*</sup>, Andy Pennington<sup>a</sup>, Lois Orton<sup>a</sup>, Shilpa Nayak<sup>a</sup>, Mark Petticrew<sup>b</sup>, Amanda Sowden<sup>c</sup>, Martin White<sup>d</sup>

<sup>a</sup> Department of Public Health and Policy, Institute of Psychology, Health and Society, University of Liverpool, Whelan Building, Liverpool L69 3GB, United Kingdom

<sup>b</sup> Department of Social & Environmental Health Research, Faculty of Public Health & Policy, London School of Hygiene and Tropical Medicine, 15-17 Tavistock Place, London WC1H 9SH, United Kingdom

<sup>c</sup> Centre for Reviews and Dissemination, University of York, Heslington, York YO10 5DD, United Kingdom

<sup>d</sup> UKCRC Centre for Diet and Activity Research, MRC Epidemiology Unit, University of Cambridge School of Clinical Medicine, Box 285 Institute of Metabolic Science, Cambridge Biomedical Campus, Cambridge CB2 0QQ, United Kingdom

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## ABSTRACT

We conducted the first synthesis of theories on causal associations and pathways connecting degree of control in the living environment to socio-economic inequalities in health-related outcomes. We identified the main theories about how differences in ‘control over destiny’ could lead to socio-economic inequalities in health, and conceptualised these at three distinct explanatory levels: micro/personal; meso/community; and macro/societal. These levels are interrelated but have rarely been considered together in the disparate literatures in which they are located. This synthesis of theories provides new conceptual frameworks to contribute to the design and conduct of theory-led evaluations of actions to tackle inequalities in health.

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\* Corresponding author.

E-mail addresses: [mmw@liverpool.ac.uk](mailto:mmw@liverpool.ac.uk) (M. Whitehead), [ajpenn@liverpool.ac.uk](mailto:ajpenn@liverpool.ac.uk) (A. Pennington), [lorton@liverpool.ac.uk](mailto:lorton@liverpool.ac.uk) (L. Orton), [shilpan@liverpool.ac.uk](mailto:shilpan@liverpool.ac.uk) (S. Nayak), [Mark.Petticrew@lshtm.ac.uk](mailto:Mark.Petticrew@lshtm.ac.uk) (M. Petticrew), [amanda.sowden@york.ac.uk](mailto:amanda.sowden@york.ac.uk) (A. Sowden), [Martin.White@mrc-epid.cam.ac.uk](mailto:Martin.White@mrc-epid.cam.ac.uk) (M. White).

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## 1. Introduction

In the public health literature, there is a growing recognition that what Syme (1989) terms ‘control over one’s destiny’ may be a fundamental social determinant of health, and lack of control an underlying cause of observed socio-economic inequalities in health. Marmot, for example, emphasises:

*“For people above a threshold of material wellbeing, another kind of wellbeing is central. Autonomy – how much control you have over your life – and the opportunities you have for full social engagement and participation – are crucial for health, well-being and longevity. It is inequality in these that plays a big part in producing the social gradient” (Marmot, 2004: p2).*

Concepts of control, autonomy and power to exercise choice are potentially important factors in determining access to resources to promote and maintain health. These notions are articulated in Amartya Sen’s theories of “freedom” and “capabilities”, for example, the substantive freedom to have opportunities and exercise choices over daily life – and the degree to which different groups in the population have that freedom (Sen, 1999a). Sen contends that relative lack of control and powerlessness are fundamental causes underpinning the socio-economic inequalities in health observed between different groups within the population. Similarly, the Global Commission on Social Determinants of Health concluded that health inequalities are “caused by the unequal distribution of power, income, goods and services, globally and nationally” (CSDH, 2008: p.1). In making recommendations for tackling these root causes in England, the 2010 Marmot Review stressed the importance of creating the conditions for people to take control over their lives and places “empowerment of individuals and communities is at the centre of action to reduce health inequalities” (Marmot, 2010: p34).

This conviction is so strong that many national and global strategies to promote population health and reduce inequalities include increasing control and empowerment as central recommendations for action (CSDH, 2008; Dahlgren and Whitehead, 2007; Marmot, 2010; WHO, 2013). Key questions remain, however, about what the principal pathways between control and health inequalities could be; whether there is empirical evidence to support or refute hypothesised pathways and whether anything can be done to boost empowerment and reduce related health inequalities.

Some of these questions have been addressed specifically in relation to the work environment. The theory of “demand and control”, for example, and the generation of health-damaging stressors was originally developed in relation to the work environment (e.g. Karasek and Theorell, 1990). Observational evidence showed that employees who experienced the twin pressures of *high job demands* but *low control* in their work were at higher risk of psychosocial stress, which has been linked to physical conditions such as coronary heart disease (CHD) (Bosma et al., 2005; Kuper and Marmot, 2003). Furthermore, exposure to low job control increases with decreasing social position and may have contributed to the observed social variations in CHD incidence (Marmot et al., 1997). Subsequent evidence has emphasised the importance of job control and social support at work. This has led to the hypothesis that interventions to increase control at work and improve the quality of social support may reduce exposure to psychosocial stressors and thereby improve health (Kuper et al., 2005; da Costa and Vieira, 2010).

But what is known about the pathways and mechanisms operating in the wider living environment, beyond the circumscribed

setting of the work environment? Much less attention in the scientific literature has been paid to the concept of control in the day-to-day living environment and pathways to health inequalities. In the Whitehall II study, people who reported low control at home had a higher risk of depression, and it also predicted heart disease in women, but not men. There is some evidence that the level of control in the living environment varies by social position (as there is for control in the work environment), suggesting potential pathways to inequalities in health (Marmot, 2004; Chandola et al., 2004). There are many relevant studies regarding control in the living environment in disparate literatures, which have not been brought together to address questions of impact at the population level. We therefore set out to fill this evidence gap, by conducting a critical review of theory (the focus of this paper), as well as systematic reviews of the observational and intervention evidence related to control in the living environment.

Here, we report the findings from our critical review addressing the review question: *what theories and conceptual frameworks have addressed the causal associations and pathways connecting degree of control in the living environment to socio-economic inequalities in health-related outcomes?*

## 2. Methods

### 2.1. Locating the theories

Interest is growing in the development of appropriate methods for review and synthesis of theories in the public health field (Lorenc et al., 2012; Bonell et al., 2013; Campbell et al., 2014; Pound and Campbell, 2015a, 2015b). We were guided by these methods, and built upon the approach developed in our mapping review of theories on pathways between crime, fear of crime, and mental health (Lorenc et al., 2012), as follows.

First, we anticipated the need for an iterative approach to searching and to search diverse literatures to identify theories about causal pathways between control in the living environment and the generation of health inequalities. We identified three central literatures:

- public health/health inequalities/social determinants of health;
- health development/global health;
- sociological/community development.

Second, from our expert knowledge of these three fields and suggestions from subject experts, we identified a small number of seminal texts, which were widely acknowledged as influential in the theoretical discourses on control in the living environment. We then employed a ‘pearl-growing’ approach, which involved hand searching the reference lists of each seminal paper for other relevant publications, then widening the search further by citation chasing in an iterative process. Key informants (including project co-investigators and the authors of seminal papers) were also asked to identify specialist websites and relevant papers in press, as well as books and book chapters where theoretical works are more likely to be published.

Third, the identification of relevant theories was supplemented as the theory review progressed, by noting theoretical discourses found in empirical studies when we conducted systematic reviews of observational and intervention studies as part of a wider evidence synthesis project. We continued to identify theories until saturation was reached.

## 2.2. Inclusion and exclusion criteria

Theories had to describe a hypothesised causal pathway from some concept of 'control' in the living environment (see [Box 1](#)) to socio-economic inequalities in health, given our focus on the generation and maintenance of socio-economic inequalities in health. To be included, the theories had to include all three of the following components:

- a) An explanation of how degree of control could influence health or health-related factors. Control had to be conceptualised as an individual's or group's power over decisions that affect their daily lives. Terms that are used in the literature to imply similar meanings to 'control' by this definition, included power, empowerment, autonomy, self-determination, agency. 'Mastery' theories were excluded where mastery was conceptualised as self-control/mastery over one's own emotions, which implies restriction rather than freedom.
- b) Clear location of the theory in the living environment. Theories concerning the work environment were therefore excluded.
- c) An explanation of how systematic differences in health-related outcomes could evolve between different gender, ethnic or socio-economic groups.

The absence of components b) and c) led to the exclusion of much of the psychological literature, for example, the substantial body of literature on theories of perceived 'locus of control' and association with health outcomes, when the theory did not reference the social context in which people live or the processes by which differences in locus of control could result in socio-economic inequalities in health. Similarly, theories of self-efficacy that had component a) were excluded if they did not also have components b) and c). For the same reasons, much of the literature about the impact that patients could

have if they had control over the decisions affecting their health was excluded because they did not contain components b) and c).

## 2.3. Synthesis

Key theoretical elements of the works identified and meeting the inclusion criteria were summarised as a critical narrative review. This involved holding a series of reflective sessions in which we mapped out the hypothesised pathways from control in the living environment to health inequalities in the form of logic models. We considered similarities and contrasts between the theoretical discourses in the identified texts and developed a set of frameworks for grouping the potential pathways by the level at which they operated. We incorporated all identified theories that contained the three essential components (a, b and c) into the logic models ([Section 3](#)). The pathways in the logic models are all supported by the theories that we encountered, though not necessarily by the empirical evidence that we obtained at a later stage. We did not filter the theories on the grounds of plausibility (they are all included), nor did we make any judgement about which were major and which were minor pathways. We concluded that we would need the results from our systematic review of empirical studies to be able to make such assessments of plausibility and major/minor pathway.

## 3. Results

The three central literatures produced distinct theories that, in the main, did not cross-reference: the public health/social determinants of health literature yielded theories at the micro-level; the sociological/community development literature focussed on the meso-level, and the health development references addressed macro-level theories. The pearl-growing from seminal papers

### Box 1—Definitions of the notion of control (or lack of it).

#### Individual:

*Autonomy*: freedom to act and make decisions for oneself. "How much control you have over your life" ([Marmot, 2004](#): p2).

*Control over one's destiny*: "the ability of people to deal with the forces that affect their lives, even if they decide not to deal with them" ([Syme, 2004](#): p3). This notion is tied up with hope for the future - lack of 'control over destiny' engenders hopelessness/no hope for the future.

*Ontological security*: "The confidence that most human beings have in the continuity of their self-identity and in the constancy of their social and material environments. Basic to a feeling of ontological security is a sense of the reliability of persons and things" ([Giddens, 1991](#): p92).

*Sense of coherence*: Part of having a sense of coherence is a) *comprehensibility*: knowing/expecting that there is some coherence or continuity to your life; b) *manageability*: a belief that things are manageable and within your control, and that you have the resources and skills to do so; and c) *meaningfulness*: a belief that things in life are worthwhile, and that there is a good reason to survive and face challenges ([Antonovsky, 1993](#)).

*Power*: is the ability to exert one's influence to effect change on the behalf of oneself or others ([Phelan et al., 2010](#))

*Powerlessness*: "an objective phenomenon, where people with little or no political or economic power lack the means to gain greater control and resources in their lives" (Albee, 1981 in: [Wallerstein, 1992](#): p 193). The converse is 'empowerment' – an outcome as well as a process.

*Perceived control/control beliefs*: individuals' beliefs about the extent to which they can control or influence [health] outcomes ([Skinner, 1996](#))

*'Real' control/actual control*: the amount of control that individuals are able to exercise [over their living environment in this case].

#### Collective:

*Community control/empowerment*: "a social action process by which individuals, communities, and organisations gain mastery over their lives in the context of changing their social and political environment to improve equity and quality of life" ([Wallerstein, 2002](#): p73).

*Cultural continuity*: has similarities with the notion of ontological security above: a sense of ownership of a collective past and stability in the future ([Chandler and Lalonde, 2008](#)).

*Collective efficacy/perceived neighbourhood control*: The belief of community members that they have the capacity to create change ([Sampson et al. 1997](#)).

*Power with (rather than power over)*: "a limitless expanding resource, which comes from within and from collaborative work with others and leads to empowered communities as people empower themselves" ([Wallerstein, 2002](#): p74).

*Social protective factors*: defined as an interaction of: Community empowerment, community capacity, community competence, social cohesion, collective efficacy, sense of community, social capital ([Wallerstein, 1992](#)). Note that Wallerstein makes a distinction between 'community empowerment' and 'social capital' seeing them both as separate but interacting social protective factors.

**Table 1**

The identified theories were conceptualised at three distinct explanatory levels.

Level	Description
1. Micro/personal	A person's social position influences the resources they have to control their destiny (in terms of money, power, information, prestige) and influence critical decisions affecting their lives.
2. Meso/community	Notions of community/collective control go beyond individual circumstances to encompass the strength/power generated by joining together to have greater influence over material and social conditions in immediate neighbourhoods/living space.
3. Macro/societal	Cultural orientation towards different groups in the population (for example son preference and gender bias) and socio-political transitions (for example, experiences of former USSR countries) operate at the level of whole societies, influencing the degree of control that members of a society have over their lives.

yielded the most material, with that gleaned from the supplementary electronic searches of empirical studies providing elaborations of theories that had already been identified by the citation chasing.

### 3.1. Concepts of 'control'

From the theories we reviewed, it is clear that there are many understandings of control – how it can operate at different levels (personal, community, and society) – and how it can concern beliefs, perceptions, and senses, on the one hand, and processes and outcomes on the other. Common notions of control identified in the relevant literature are summarised in Box 1.

During the reflective sessions, we considered similarities and contrasts between the theoretical discourses, and discerned that explanations were conceived as operating at three main levels (Table 1). This classification draws on the Dahlgren and Whitehead (1993) model, which conceptualises the main determinants of health as interacting layers of influence, one over the other, operating at the individual, community, system and macro-environmental levels. We outline the theoretical pathways at each level and their intersections in the following three sections.

### 3.2. Micro/personal level theories

At the micro level, theories suggest mechanisms by which people in lower social positions experience lower control over their destiny, including a relative deficit of resources needed for health and wellbeing. This low control in turn causes chronic stress responses, which can lead to higher prevalence of physical and mental health problems than their more advantaged counterparts. Theories can be divided into those that concern pathways leading from 'real' or 'actual' control and those leading from 'perceived' control, as detailed below.

#### 3.2.1. The 'actual' control pathways

Two, inter-related strands of theory connect the experience of low social position with poorer physical and mental health, as depicted in Fig. 1. The top strand is concerned with the role of 'real' or 'actual' control (as opposed to 'perceived' control/control beliefs depicted in the lower strand). Actual control relates to the amount of control that individuals are able to exercise over their living environment through the economic and social resources they have at their disposal. Theory proposes that people in low social positions have fewer resources to cope with the excessive demands that their life entails, compared with people in higher positions

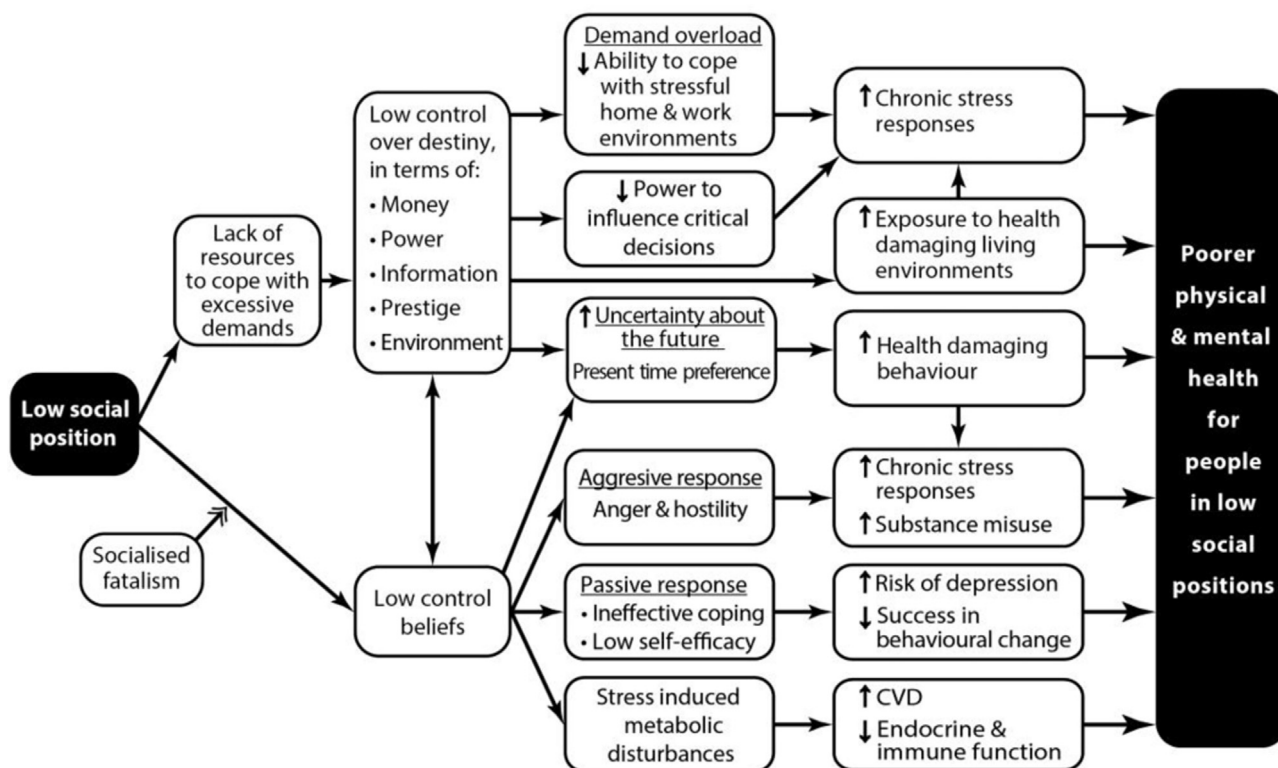


Fig. 1. Theoretical pathways at the Micro/personal level leading from low control to socio-economic inequalities in health.



(Lundberg et al. 2007). This leads to low actual control over destiny, in terms of money, power, information, prestige (Syme, 1989, 2004). It also leads to a decline in the power that an individual has to influence critical decisions affecting their lives (Marmot, 2004). Lower control over, and amount of, economic and social resources experienced by people in low social positions is hypothesised to have both direct and indirect effects on health. The direct effect is through greater exposure to health-damaging living environments, leading to poorer health for people in lower social positions (CSDH, 2008).

The indirect effect is posited to operate through chronic stress responses. With low control, demand overload goes up, causing a decline in ability to cope with stressful home and work environments, and a decline in ontological security, as the world is experienced as an insecure, unpredictable place (Giddens, 1991; Hiscock et al., 2001). Demand overload, powerlessness and insecurity are hypothesised to induce chronic stress responses (which have been found to be higher in people in low social positions (Stephens, 2006)) which lead to poorer health in terms of both mental and physical conditions (Syme, 1989, 2004; Marmot, 2004; Bosma, 2006; Phelan et al., 2010). The physiological mechanism entails chronic stressors stimulating biological systems by activating autonomic, neuroendocrine, immune and inflammatory responses. This also leads to the release of hormones, such as cortisol and adrenaline (epinephrine), which have effects on peripheral tissues, e.g. cortisol stimulates glucose production in the liver, and helps release free fatty acids from fat stores; activation of the sympathetic nervous system leads to increased blood pressure and heart rate, and stimulation of blood clotting factors. If systems are exposed to repeated stimulation, such as with chronic stressors, dysregulation may occur, resulting in adverse health outcomes (Stephens, 2006).

Charlton and White (1995) introduce the notion of differential “margins of resources” as an explanatory variable for socio-economic inequalities in health. They hypothesise that access to resources, balanced by needs, results in a margin of resources, at an individual level – a reserve of resources – the size of which predicts social position and thus level of inequality. The size of this margin in turn influences the degree of autonomy/choice/control and time preference that people in different social positions have, which together influence health-related behaviours, access to health care, avoidance of health risks, and so on. ‘Time preference’ in this context means the degree to which an individual can invest their current resources in an uncertain future (Adams, 2009). For more disadvantaged groups, income and employment are insecure, which makes the future uncertain and difficult to plan for. In such circumstances, it is postulated, more disadvantaged groups may choose gains that are almost certain today (present time preference), rather than less certain gains in the future. This may lead to the decision to smoke or drink, for example, to gain instant benefit, even if there is a known risk of health damaging effects of the behaviour sometime in the future. Conversely, more advantaged groups, with more financial and job security, are able to be more future-orientated, and may find it easier to forego the present attractions of smoking or drinking to achieve greater health benefit in the future (Adams, 2009).

The emphasis on differential resources also chimes with the ‘theory of fundamental causes’ developed primarily by Link and Phelan (Link and Phelan, 1995; Phelan et al., 2004; Phelan et al., 2010). They developed the theory to explain why the association between low socio-economic position and poorer health had persisted over many decades (even centuries), despite the demise of earlier risk factors and diseases that appeared to explain the association. They evoke the notion of an array of resources, including power and beneficial social connections, but also encompassing money, knowledge and prestige, which individuals and

groups deploy to avoid risk and adopt protective strategies. They propose that there is a social gradient in these key resources embodied in different social positions, which thereby allows people in more privileged social positions to gain a health advantage, and in the process reproduces the observed health inequalities (Phelan et al., 2010).

### 3.2.2. The ‘perceived’ control pathways

In the second (lower) strand depicted in Fig. 1, theories concerning ‘perceived control’/control beliefs are invoked. One line of reasoning is that children growing up in families with low socio-economic positions are socialised into being fatalistic, believing that they have lower control over their destiny than their more privileged counterparts, and these low control beliefs continue and are amplified in adulthood (Wheaton, 1980; Bosma et al. 1999). The hypothesis is that they have low expectations of what they can achieve in life and a relative lack of orientation towards the future, in large part because they are subjected to the low-expectations for them of significant others, such as families, teachers, prospective employers, because of their low position. Low control beliefs are postulated to lead to contrasting psychological responses. Firstly, there may be an aggressive response involving anger and hostility, which can induce chronic stress responses and also lead to an increase in health-damaging behaviour, such as smoking and problem drinking. The idea is that feelings of having little control over what happens to you – of feeling trapped – can evoke frustration and anxiety that brings out an aggressive coping strategy (Wilkinson, 1999; Schrijvers et al., 2002). Secondly, low control beliefs may evoke a passive response, such as ineffective coping, low self-efficacy or esteem, which may go on to induce depression (Ross and Mirowsky, 1989) and reduce success in changing behaviour for the better – you have to have some hope for the future to successfully quit smoking (Charlton and White, 1995). Thirdly, there may be a direct effect of low control beliefs on metabolic disturbance – induced by chronic exposure to stressors. These may lead on to such responses as higher risks of CVD, lower endocrine and immune function (Bosma, 2006; Marmot, 2004; Stephens, 2006). All these pathways may result in poorer physical and mental health with declining social positions.

In Fig. 1 there is a two-way arrow connecting low control to low control beliefs, because one may induce the other: people who have low actual control may quite realistically hold low control beliefs – the beliefs reflect the reality of their day-to-day lives. Conversely, low control beliefs may lead children not to do as well as they could at school, going for lower paid jobs or failing to get jobs, all of which may put them in a position of low actual control over resources.

### 3.3. Meso/community level theories

At the meso/community level, the theories centre on the processes by which people interact with the places in which they live. The starting point for this explanation is disadvantaged living environments, and the interaction between disadvantaged people and places that may produce a sense of collective threat and powerlessness. Together, these act as chronic stressors, which over time are damaging to health. Contrasting theories, on the other hand, maintain that the converse of powerlessness – community empowerment – may result from the interaction between people and place, when community members act together for mutual benefit and challenge unhealthy material conditions, or attract resources to their neighbourhood, to make it a better place to live. There is a distinct class of theories on mechanisms conceptualised as operating at the ecological level – the interaction of places with people, leading from some form of collective control to health, illustrated in Fig. 2. These theories are detailed as follows.

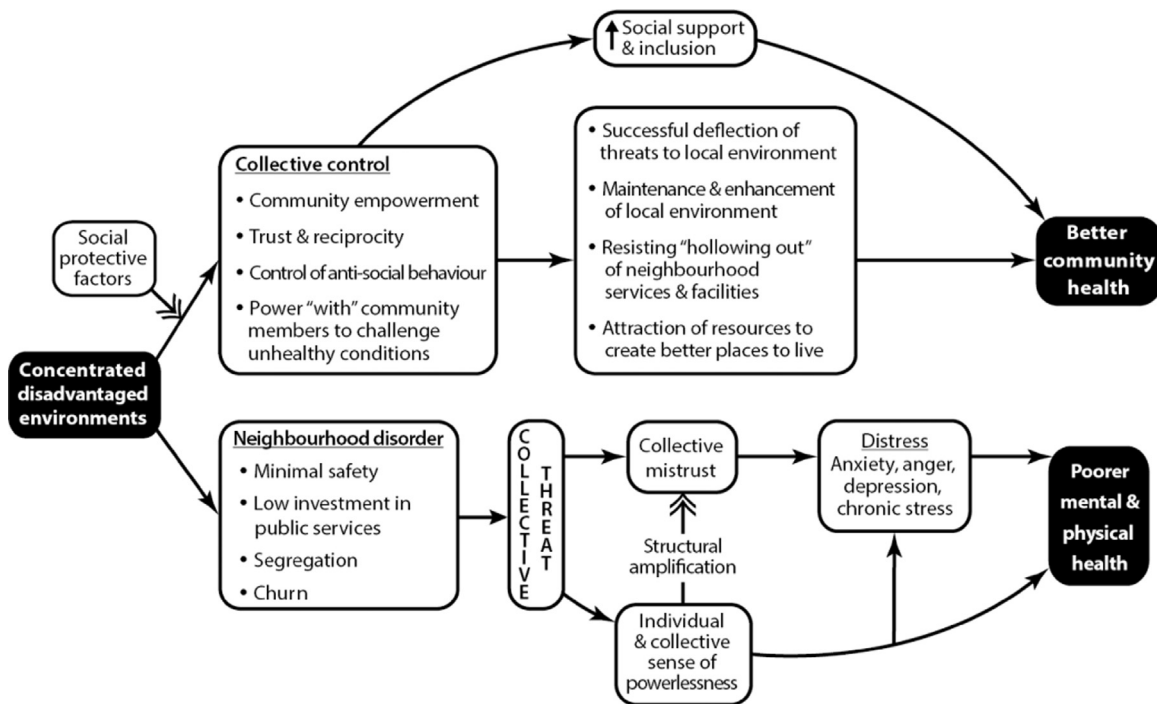


Fig. 2. Meso/community pathways from low control to socio-economic inequalities in health.

### 3.3.1. Neighbourhood disorder

One line of reasoning, depicted in the lower pathways of Fig. 2, stems from sociological studies of stressors at the neighbourhood level, leading to theories of neighbourhood disorder: concerning both the sociological processes that create neighbourhood disorder and the multiple effects on health and wellbeing of that disorder. The theories were developed predominantly, though not exclusively, from sociological studies of deteriorating trends happening in US cities (Wallace and Wallace 1990; Pearlin, 1989; Hill et al., 2005; Latkin and Curry, 2003; Mirowsky and Ross, 2003). In environments of concentrated disadvantage – where both the places and the people suffer multiple disadvantages – conditions may interact to produce neighbourhood disorder, characterised by minimal safety, low investment or divestment/‘hollowing out’ of public services including health, social welfare, fire and police protection; segregation; and high transience/turnover of residents (high “churn”) (Wallace, 1993). Residents experience these neighbourhoods as dangerous and threatening, and collective threat is alienating and distressing even though few people get personally victimized (Ross, 2011).

In Fig. 2, there can also be a direct pathway leading from neighbourhood disorder to the generation of a widespread sense of powerlessness, which may lead to anger and depression. A common narrative is that collective threat is alienating and increases the sense of mistrust and powerlessness amongst residents, which in turn lead to psychological distress – anxiety, anger, depression, and other responses to chronic stressors – and on to poorer mental and physical health and wellbeing. Key interactions here are posited to be between collective mistrust and perceived powerlessness. The sense of powerlessness can be reinforced if it takes place within a threatening environment, so that collective mistrust is amplified. Conversely, a sense of control (as opposed to powerlessness) in a threatening environment would moderate collective mistrust (Ross, 2011).

### 3.3.2. Collective control/empowerment pathway

The upper pathway of Fig. 2 depicts pathways from collective control/empowerment to health drawn from the health

promotion, community development, and poverty-reduction literatures. These meso-level pathways start with environments of concentrated disadvantage or poverty, as with neighbourhood disorder theories, but asks the positive question about whether there are social protective factors in any given community which interact with its capacity to challenge unhealthy material conditions, “even in the face of concentrated disadvantage or poverty” (Wallerstein, 2002: p73). In the social determinants of health literature, powerlessness is seen as a core risk factor for disease and, conversely, that empowerment can be an important strategy for improving a population’s health (Syme, 1989; Marmot, 2004; Popay, 2010).

Powerlessness, or lack of control over one’s destiny, is seen as a chronic stressor, growing out of the day-to-day experience of hard-pressed communities, living in hardship over a long period of time. The hypothesis is that “lack of control over destiny produces a susceptibility to ill-health for people who live in high demand or chronically marginalised situations and who lack adequate resources, supports, or abilities to exert control over their lives” (Wallerstein, 1992: p 202).

The converse of powerlessness is seen as community empowerment, which is a strategy to develop ‘power with others’ (rather than ‘power over others’) to bring about social and political change (Rifkin, 2003). Wallerstein envisages community empowerment as “a multi-level construct that involves people assuming control and mastery over their lives in the context of their social and political environment; they gain a sense of control and purposefulness to exert political power as they participate in the democratic life of their communities for social change... A study of empowerment, therefore, implies not just studying individual change, but also change in the social setting itself” (Wallerstein, 1992: p 198).

Health outcomes from community empowerment are hypothesised to be direct, for example when neighbourhood activity successfully prevents placement of a toxic waste facility in the area or when community action leads to the passing of a clean air ordinance. Indirect health effects may also occur through the reduction in social isolation that participation in the community

activities brings about, which in turn leads to improved mental health (Wallerstein, 2002).

The notion is that community empowerment in Fig. 2 is both an outcome and a process (Perkins and Zimmerman, 1995; Zimmerman, 2000). It is an outcome of the interaction of place with social protective factors operating in the community such as social cohesion, community capacity, ontological security or sense of continuity (Hiscock et al. 2001), which help to create the conditions for community empowerment. But community empowerment could be considered a social protective factor in its own right – forming part of the process that results in greater community control over decisions that affect residents' daily lives. Recently, the notion of social protective factors has been elaborated to include 'health assets' that communities possess (Morgan et al. 2010).

The positive health impacts achieved when community members act together for mutual benefit are proposed to operate through both direct and indirect pathways. The potential direct pathways include a reduction in exposure to environmental toxins as a result of collective control, and the garnering of resources to prevent or mitigate risks to health (Popay, et al. 2007; De Vos et al. 2009). There may also be indirect pathways – through improving social supports and supportive networks which combat social isolation and foster a sense of connectedness and community competence. These in turn may help foster trust in the neighbourhood and neighbours, reducing alienation and distress (Bernard et al. 2007).

One potentially negative pathway leading from community empowerment to greater distress/ill-health has been posited by some commentators (Hunt, 1987, Popay, 2010). This stems from the reality that there is only so much that communities can do, even if working together highly effectively, to change the larger political, socioeconomic and cultural forces that shape their disadvantaged environment. There is a risk of 'burn-out' or disillusionment among community activists when heightened awareness leads them to realise the limits of their influence. In these circumstances, instead of heightening control over destiny, the process may add to a sense of powerlessness – in a vicious circle that is harmful for health. Well-meaning community development projects can also raise expectations which might not be met, leading to further disillusionment.

### 3.4. Macro/societal level theories

At the macro/societal level, theories recognised the importance of considering people in their societal context. People live in societies with varying degrees of exclusion and discrimination. These theories posit that cultural, social or political processes that exclude or discriminate against whole sections of society result in low status and hence low control of discriminated groups over access to the necessities for health.

The notion of control as an important experiential factor in people's lives comes through in the health development literature. Amartya Sen, for example, expresses the view that:

*"The success of an economy and of a society cannot be separated from the lives that the members of the society are able to lead. Since we not only value living well and satisfactorily, but also appreciate having control over our own lives" (Sen, 2003a).*

Observation of the debilitating lack of control over everyday life experienced by poor rural women in parts of South Asia was the inspiration for Amartya Sen's investigations into the world's 'missing women' (Sen, 1989a; 2003) and his notion of development as a form of freedom: freedom and capabilities to live a long and healthy life (Sen, 1989b; 1999a). Cultural orientation towards different groups in the population (for example, son preference and gender bias) and socio-political transitions (for example, during the macro-economic transitions experienced by former USSR countries) operate at the level of whole societies, influencing the degree of control that members of a society feel they have, and actually do have, over their lives. Mechanisms concerning the position of women in society and the effects of massive social transitions, in particular, can only really be understood at the societal level, as detailed in the following.

#### 3.4.1. Gender discrimination and the low status of women

Amartya Sen's philosophical theories of "freedom" and "capabilities" have been influential in shaping thinking about the importance of control in human development. In particular, Sen's work has focused attention on the lack of freedom and its health consequences for women in contexts where there is gender bias in relative care (Sen 1999a; 1999b). Fig. 3 illustrates the hypothesised pathways between the low status of women in societies with overt gender discrimination, and health and wellbeing outcomes.

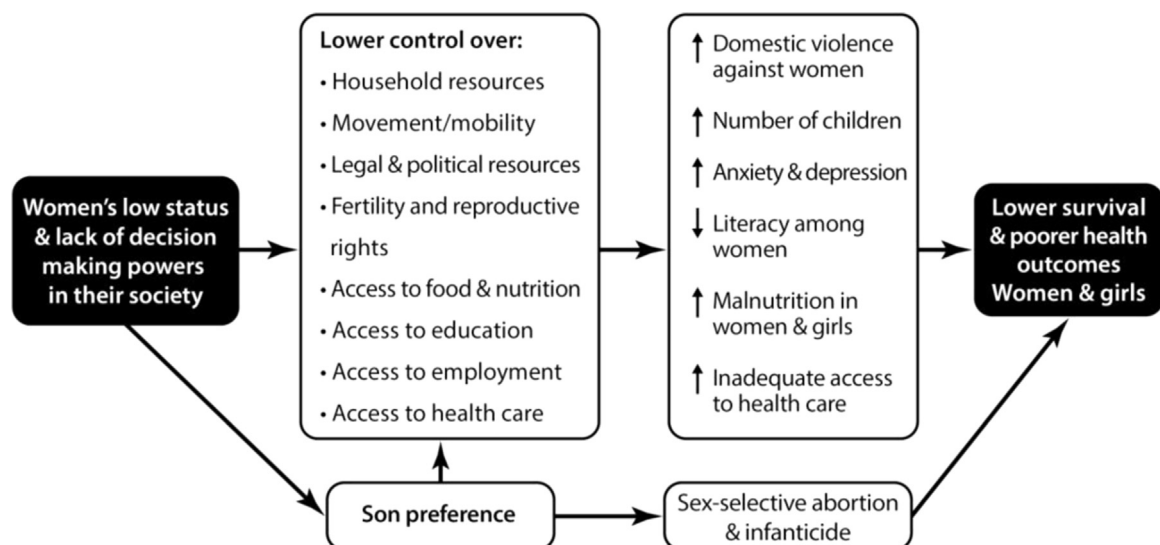


Fig. 3. Pathways from women's low status in society to poorer health outcomes.



The central theory is that low female status in particular societies may lead to reduced control for women over their access to food and nutrition, health services, education and employment opportunities, as well as reduced access to household resources and fertility and reproductive rights (Sen, 2001; Sen 1999a; Sen 1999b). These processes may lead to poorer population health outcomes through higher rates of domestic violence against women and girls, and of malnutrition; lower rates of access to essential health care, reduced schooling and subsequent income, which leads on to poorer health outcomes compared with women in societies without such a degree of gender discrimination (Allendorf, 2007; Shen, 1997; Wickrama and Lorenz, 2002).

In addition, in societies with marked son preference, further mechanisms are posited as coming into play, depicted at the foot of Fig. 3. Countries with entrenched cultural preferences for boys over girls ('son preference') include China, India, Pakistan, Egypt, Bangladesh, Iran, Afghanistan, Syria, Algeria, Turkey and Tunisia. There is an indirect pathway from son preference to poorer health outcomes through reduced access to food and nutrition, education, employment and health care, which leads on to poorer nutrition, as part of a relative neglect of girl children, which cumulatively leads to poorer health outcomes (Asfaw et al. 2010; Jayachandran and Kuziemko, 2011; Osmani and Sen, 2003). But a more direct pathway to higher death rates and lower survival chances has also been postulated: through mechanisms such as infanticide of girl babies, and – in recent decades when technologies have developed – the practice of sex selective abortion (Banister, 2004; Klasen and Wink, 2003). Sen contends that progress in bringing female death rates down in some son preference countries (as part of a general improvement in population health) has been counterbalanced by a rise in sex-selective abortion (Sen, 2003b). As well as having a direct effect on the survival chances of female foetuses, girls and women, commentators warn of wider societal impacts of having fewer women than normal in the adult population, including, in China in particular, having millions of men without spouses or children. The posited consequences include increased risks of coerced marriage, bride abduction, trafficking of women and girls, sexual exploitation and violence across communities (Bongaarts, 2013).

#### 3.4.2. Theories about the loss of control and health during rapid socioeconomic transition

Distinct theories about mechanisms operating at the macro/societal level arise from observations of the health impact of the

collapse of the former Soviet Union in the late 1980s. This brought with it sharp social and economic crises in the countries concerned across the whole population, coupled with declines in life expectancy on a scale unprecedented in European peacetime history in modern times (Shkolnikov et al., 2001). Furthermore, the impact on life expectancy was not evenly spread across the population, but affected the worst-off in society the most (Shkolnikov et al., 1998). The hypothesised pathways involving loss of control at a societal level are depicted in Fig. 4.

Debates about the potential causes of the decline in life expectancy as a result of this natural experiment in reduced societal control have featured the change in material factors, such as an increase in poverty and unemployment, and psychosocial factors including an increase in both stressful life events, and the feeling that everyday life is being turned upside down and spinning out of control (Cornia and Panizza, 2000). A further reaction to such stressors in some former Soviet Union countries, at least in Russia, has been posited to be through behavioural pathways, such as people, particularly men, turning more and more to alcohol to cope with overwhelming stressors, with resulting effects on mortality and morbidity (Moskalewicz et al., 2000).

The pathways in Fig. 4 start with the rapid social, economic and political transition in the former Soviet Union causing insecurity, and in some cases a breakdown, in the systems that people rely on in their everyday life: insecurity in the labour market, unemployment, decline in social protection and health care systems, breakdown in law and order, increases in poverty and family instability (Cornia and Panizza, 2000). All these insecurities/loss of control contribute to an increase in health risks across the population, including rises in psychological and somatic responses to chronic stressors, violence, substance misuse as a form of coping, and exposure to environmental hazards as safety standards decline (McKee, 2001). These in turn lead to physical and mental health problems. The social fabric of the society also suffers in such conditions, with lower levels of perceived control and agency causing a loss of optimism/hope for the future, loss of trust and perceptions of security, which in turn feed into increased health risks, and ultimately poor population health and wellbeing.

#### 3.5. Interactions between levels

From our synthesis, we contend that the micro, meso, and macro-level explanations should not be considered in isolation,

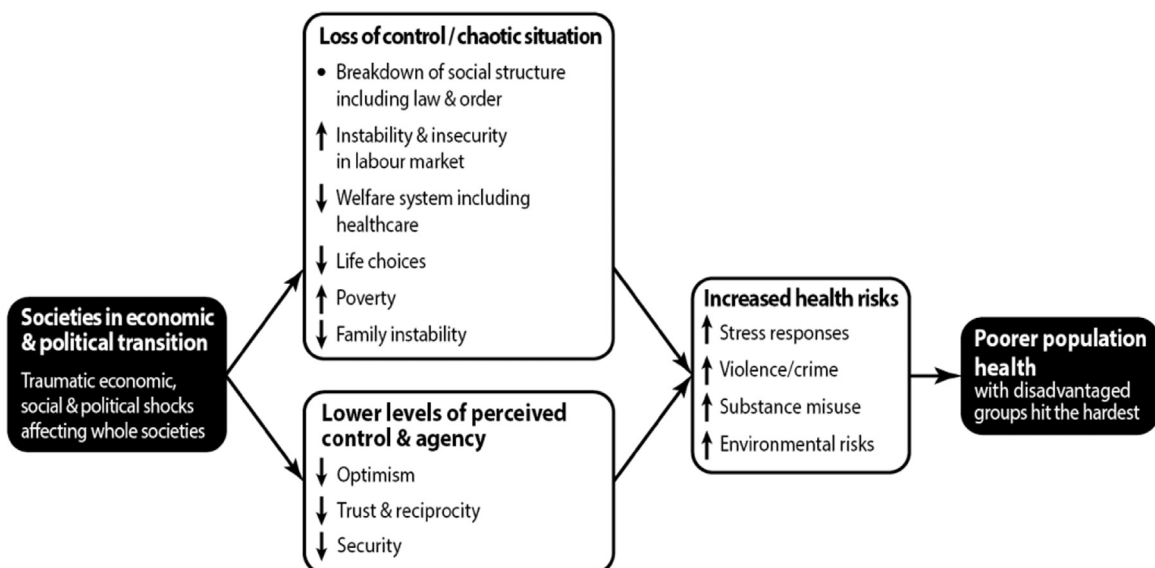


Fig. 4. Pathways from traumatic societal transitions to poorer population health.

but as part of a comprehensive whole, as there are mechanisms at each level that interact with other levels. Our assertion draws on the Dahlgren and Whitehead (1993) model, which conceptualises the main determinants of health as interacting layers of influence, one over the other, operating at the individual, community, system and macro-environmental levels.

The micro-level explanations in our synthesis of theories start from the premise, without necessarily stating it explicitly, that there are mechanisms operating at the community and societal level influencing the social positions in which people end up, the differing social context in which they live, and the resulting differentials in power associated with those positions in a particular society. Most of these micro-level explanations assume that people in less privileged social positions have less control over their destiny than their counterparts in more privileged positions. The reasons, we contend, also stem from interactions with the meso and macro levels.

Most of the meso-level explanations of the pathways from collective control to socio-economic inequalities in health start with the premise that communities living in materially and socially disadvantaged places have less control over the decisions that influence their day-to-day lives and less power to influence change for the better. This begs the question: why? And the answers need to draw on micro-level explanations (the socio-economic composition of the local population and how that influences collective control), interacting with macro-level influences from societal culture, politics and policy. A paradox is that these individual and societal influences interact to produce a new phenomenon – collective control – which cannot, for example, be reduced to, or measured by, indicators of individual control.

At the macro-level, explanations of the low status and low control of women in societies with overt gender discrimination focus on the operations of historical, cultural and gender power relations at the political and organisational levels. But they also bring in how these power relations are experienced by women at a more personal level – in the neighbourhoods and households in which they live.

#### 4. Discussion

Our review has identified some key theories on how differences in 'control over destiny' could lead to socio-economic inequalities in health, which we conceptualised as being at three distinct explanatory levels. There are explanations that stem from social position of individuals (micro/personal level); those that start with the place/community context in which people live, and its interaction with people (meso/community level); and those that deal with the whole societal context (macro/societal level). These levels are interrelated; an important innovation in our study is to bring together, for the first time, the various theories concerning pathways from low control to the generation of socio-economic inequalities in health, which have previously tended to be viewed in isolation. This synthesis thus brings a new lens to both the theoretical and policy debate on causes and action on socio-economic inequalities in health.

There are limitations to this synthesis of theory which should be considered. All four frameworks depicted in Figs. 1–4 start with low status and low control of one form or another and follow the pathways from there to socio-economic inequalities in health. In doing so, we missed out the processes that come beforehand – the theories of social stratification by which people end up in different social positions with different degrees of power. We also did not seek to synthesise the counter-theories and critiques of the theories that are discussed here. This is partly because any one of the links on the postulated causal pathways depicted in Figs. 1–4

would require a paper of its own to offer a meaningful critique. It is also because, after the synthesis of theories, the next logical step is to look at the empirical evidence for the hypothesised pathways. The empirical evidence will support or refute the separate links and help eliminate the pathways for which there is little or no supporting evidence. This process in turn should reveal alternative theories for the phenomena under study. Most important of all, we had to draw a boundary around the theories to make the task manageable and ultimately useful for informing future strategy development. In this way, these limitations are also a strength.

The synthesis of these disparate theories, and their classification into distinct levels, serve several important purposes in terms of illuminating further research and public health strategy development. First, identifying the potential pathways and mechanisms suggests causal linkages to explore empirically. What is the empirical evidence to support or refute these hypothesised causal pathways? Are some pathways more important than others in generating health inequalities? Figs. 1–4 can be used as logic models to design both systematic reviews of the observational evidence and empirical studies to test specific links in the chain. To this end, we have undertaken a series of systematic reviews of the observational and intervention evidence in an attempt to assess the various potential pathways (forthcoming).

Second, the synthesis points to different types of evidence that would need to be examined and suggests a range of diverse literatures to search. Where would you look for the evidence? The answer may be different for different levels. Most of the high quality evidence for the micro-level pathways in Fig. 1 comes from longitudinal cohort studies in the social epidemiology/health inequalities literature. But cohort studies would be of much less use when examining the impact of son preference on female survival chances at the macro-level, for example. In this case, evidence from demographic studies of population sex ratios from the health development literature, together with qualitative studies of the experiences of women in son preference countries, would be informative. Likewise, some of the meso-level community control linkages are investigated in the community psychology and community development literatures, as well as in sociology and political science. The notion of control itself differs markedly across the different bodies of literature, but also varies depending on the level at which control is conceptualised. This is reflected in the diverse markers or measures of control employed within the studies: collective control is very different from individual control and requires a whole new approach to the development of indicators to capture the phenomenon. This adds to the complexity of doing this theory review of such diverse literatures.

Third, the 'logic models' that we have developed suggest points along the pathways for possible intervention to reduce the associated socio-economic inequalities in health or their determinants. The possibilities and relative effectiveness of intervening on one pathway versus another can then be investigated. For example, at the micro/personal level, should interventions be aimed at low control beliefs and self-efficacy of more disadvantaged socio-economic groups, or on their lack of resources to cope with excessive demands? Would interventions operating at multiple levels be more effective? Our synthesis of theories should provide new conceptual frameworks to contribute to the design and conduct of theory-led evaluations of actions to tackle socio-economic inequalities in health.

#### 5. Conclusion

In this paper, we have brought together three distinct sets of literature and identified the principal theories exploring how differences in 'control over destiny' could lead to socio-economic

inequalities in health. We grouped the theories by the level at which they operated: micro/personal; meso/community and macro/societal and identified several principal pathways by which low control could be linked to poorer physical and mental health in poorer groups.

Explanations stem from being in a low social position; living in a disadvantaged environment with a sense of collective threat and powerlessness and the degree to which people are discriminated against and excluded from the society in which they live. At each level and for each pathway we suggest causal linkages to explore empirically, as well as possible points for future intervention. To our knowledge this is the first synthesis to explore the principal pathways through which control in the living environment could influence health and health inequalities.

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